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ABSTRACT

At Sage Colleges (New York) the Faculties of Arts and Sciences and the Faculty of Education have collaborated to involve undergraduate students in actively thinking about teaching subject matter. First an education/liberal arts advisory group was established to bring the faculties together. Out of this group came one collaboration between Education and Mathematics: a pedagogical seminar was developed for the parallel structures of Math Methods and Foundations of Modern Mathematics. Though the course was mathematical in content, the language and concepts extended beyond disciplinary boundaries to focus on transforming content knowledge into pedagogical knowledge. Other education/math collaborative activities led to modules of pedagogy in subject areas and prototypes for use by faculty and to test with students. An example of an individualized adolescent psychology module developed for a student with majors in both Spanish and Education illustrates the collaborative process. A persistent debate was between the transformative tradition which emphasizes cognitive and emotional change versus the mimetic approach which emphasizes passing on knowledge to the next generation of students. (JB)

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Pedagogical Seminars in the Arts and Sciences

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Pedagogical Seminars in the Arts and Sciences

Julia Johnson Rothenberg Ph.D.

Student in Instructional Design Course

Same Professor, later the same year

Mathematics Professor

This a descriptive paper about an innovation in higher education. The content and the process nature of this ongoing project determine the nature of the paper, differing from a characteristic research paper. The actual innovation will be presented first, and literature, theory and philosophy will be included in the discussion.

The innovation is a sustained project of collaboration between a Faculty of Education and Faculties of Arts and Sciences that involves undergraduate students in actively thinking about teaching subject matter. This institution has required a double major for all education majors for three years, combining a concentration in either elementary or secondary education with a concentration in the arts and sciences. As of September 1993, NY State certification in education also has required a major in one of the liberal arts subject areas. Several years ago one of our education professors began thinking about the notion of pairing together the Faculties in Education and in the Arts and Sciences in order to develop pedagogical seminars in each content area. These pedagogical seminars would actively engage professors and students in the endeavor of thinking about teaching, and perhaps in transforming or analyzing subject matter.

Such an idea had many positive factors, for elementary, secondary and for higher education. The Education Department had long been concerned about the transformation of subject matter for the purposes of teaching. We had been unhappy with traditional ideas of teaching subjects called "Methods of Teaching...". It had seemed to us that pedagogy as a subject is a complex subject worthy of study and learning, as is the teaching of each particular area of subject matter. Such matters needed to be discussed and reflected upon by both educators and experts in the subject areas. In addition, we reasoned that students need to think early in their undergraduate college years about ways to teach the knowledge they are learning.

An education/liberal arts advisory group was established as a first step in bringing the Faculty of Liberal Arts and Education together to foster a collaborative teacher preparation program. Everyone was interested in the notion, but they also saw drawbacks in its implementation, many of which were concerns about combining disciplines. One quotation from a Professor of Middle Eastern History at the initial meeting illustrates their position: "My son asked me to tell him about the PLO-Israeli Agreement to report to his second grade class. I started to tell him, and he told me to stop. He said he couldn't tell his class that stuff. I wouldn't have any idea of what to teach second graders. I couldn't possibly incorporate such a thing in my courses." The response from the Liberal Arts Faculty was very hesitant, even resistant, with one exception.

The exception was a professor in the Mathematics Department. Two of his colleagues, one in math and one in education had been working well together in bringing the first "Graphing Calculator Workshops" to area high school teachers. Their experience in combining the disciplines of mathematics and education had an instrumental effect on our process. The Faculty members in mathematics and education (math methods) came together to discuss their individual syllabi. After two months of discussion, a pedagogical seminar was developed for the parallel structures of Math Methods and Foundations of Modern Mathematics. The course was mathematical in content. However, its language and concepts extended beyond disciplinary boundaries to focus on transforming content knowledge into pedagogical knowledge. As the instrumental math professor said: "I have a selfish interest in this course. It's going to make me a better teacher."

In another facet of this collaboration, an education department professor has been systematically auditing mathematics classes in order to develop exemplary work in mathematics pedagogy, from early level coursework through advanced calculus. She has become instrumental in revising the syllabus of a course which teaches mathematics and pedagogical content together. The motto "Qui docet dicet" (he who teaches, learns) is particularly appropriate here because many students feel inadequately prepared in content to teach mathematics. They require learning both in mathematical content and in mathematical pedagogy.

As this work progressed, an often discussed topic was the

Pedagogical Math Seminar in conjunction with the idea of working on other seminars. Currently course modules are being developed and tested with the idea of combining several of the modules to form multidisciplinary seminars. In these seminars, students would work on modules individually or in small groups and then meet together, much as graduate seminars do. As the notion of developing modules of pedagogy in subject areas has become a real possibility, we have begun to develop prototypes to discuss among the faculty and also to test with students. While faculty have been working on the seminars, the students' ongoing work on seminar projects has helped us to revise such modules in the process of working with them.

We have begun with the subject matter to be taught and then worked on the pedagogical strategies and questions involved. The first questions concern what aspects and structures of subject matter one would teach to various populations, for example: secondary school students who are going to go to college, or secondary students who are going to be adult members of a community in New York, or to students in the sixth grade, or to students in the second grade. What materials would they read? How close to college materials can these readings be? What types of fiction and non-fiction are best for the subject taught? Are there primary materials that can be used with any or all of the above groups?

Then, there is a second group of questions, perhaps more important. What aspects of the structure of the subject can be used to teach each group of students? Can an experiment be performed, or

an inquiry be conducted? Can inductive thinking methods be used and/or techniques of observation? Again, how would methods change according to the student population? This, of course is an exceedingly broad and complicated aspect of teaching and we do not purport to cover it adequately by combining subject matter and pedagogy in college. However, the constant presence of the questions is useful for novice teachers and college faculty to consider. As one student recently commented: "Wait a minute. You're asking me to turn everything on its head. I've been a student for years, receiving all this knowledge, ready to spit it back to you. And now, now you're saying I have to think about how to teach it. But this turns everything all around in my thinking!"

As one example, the following module was developed between a psychology professor and the author of this paper for a student who is both a Spanish and an Education major. In this instance, we developed the module to fulfill a course in Adolescent Psychology.

Module Task: Relate the readings assigned by Prof. J. to issues of teaching Spanish to adolescents. Each of the questions should be addressed as a research paper, using appropriate references from the combined areas of learning.

1. Many people describe learning a second language as feeling "babyish". How would this affect adolescents who are learning a second language? What are some substantive ways that a teacher (you) could cope with these problems?

2. What positive effects might learning Spanish as a second language have on one's identity formation? Be as thoughtful and

wide-ranging as possible. For example, how might one's empathy or point of view be affected?

3. What are the areas of development in adolescence that particularly are vital in teaching secondary school? Think about such factors as:

organization of schools

power structure in schools

discipline/managemenmt issues

relationships with teachers

relationships with peers

4. What are possible psychological danger signs you should watch for in your adolescent students?

The professors of psychology, education and Spanish all provided assistance in helping the student to find and use appropriate texts and journal articles. This module could be considered a syllabus for a course, but it is designed for one particular student. Or it could be used by a small group of students who would join one or both of the professors in a seminar, perhaps inviting a Spanish professor to join the class on occasion.

At a meeting held with members of the Faculty of Arts and Sciences, the first discussion centered around comments such as the first one quoted above from a history professor. However, as we began to discuss specific examples such as the one above, the mood began to change noticeably. Eventually the discussions led to the the same professor saying: "I've been experimenting with teaching a class through historical fiction that I myself have written. The

factual material is the same, but the characters are fictitious. The class doesn't know the difference, thinks it's all a good story. But they love the story, and it makes the history come alive."

One of the other professors had worked with the author on developing and transforming materials concerning local history for elementary and secondary school teachers. This professor subsequently obtained a grant to work directly with a local urban elementary school. She could readily speak about the value of this process, not only to students, but to teachers in the schools and to herself as a scholar as well.

Another idea behind the modules is to incorporate them into course work in a number of undergraduate courses. Such courses could be as advanced as a seminar in historiography or proseminar in sociology, or as basic as a course in American Civilization. Each pedagogical seminar module would add one credit to the arts or sciences coursework. In some departments, professors have been experimenting with this notion in independent studies; in economics, chemistry, and political science professors have worked with individual students on extensive teaching/learning projects.

Questions that arise about pedagogy and subject matter can be knotty and difficult to resolve. As we continue to work on this project, the theoretical assumptions have to be examined continually. Jackson (1986) has discussed the philosophical implications of either the mimetic approach to teaching, which passes on knowledge to the next generation of students, or the

transformative tradition, which emphasizes cognitive and emotional change as in Bruner's work (1986).

One example may serve as an indicator of the problems of the mimetic approach. A study done at the U. of Washington found that secondary history teachers were distressed at the idea of presenting Abraham Lincoln as a multi-dimensional figure making some rascist-sounding pronouncements (Wineburg, 1992). This is a problem only if the students are not required to think critically about all parts of this knowledge: the factual events, the time during which they occurred (broadly including both culture and the crisis for the U.S.), the character of Lincoln, and so on.

The transformative orientation has been central to certain reform movements, politically and philosophically, for example, in Freire's influential work (1971) and that of Giroux and McLaren (1986). Giroux and McLaren describe the orientation this way: "Teachers who assume the role of transformative intellectuals treat students as critical agents, question how knowledge is produced and distributed, utilize dialogue, and make knowledge meaningful, critical, and ultimately emancipatory" (1986, p. 215). The authors' purpose is to develop a reconceptualization of teaching which will revive critical citizenship in our democracy.

In these transformative approaches, the teaching is presumed to have a direct effect on the ways that students think and conduct their lives, rather than seeing students as vessels that become filled with the knowledge of their mentors, or, in Freire's terms, "banks" in which knowledge is placed for investment for future use

(1971). One of our underlying assumptions is that we are modeling and developing transformative intellectuality in our students, regarding both their content area and their pedagogy.

The teacher must choose, as usual, what composes the curriculum. But s/he must think about the consequences of such choices. Does the choice lead to critical thinking, to research, to giving the student the tools of learning? Or does the choice lead to the student receiving a particular block of information that is to be learned, therefore implying that it must be true? Shulman's work (1987) also has been influential in our thinking about necessary pedogogical knowledge in the transformation of subject matter for teaching. He has been the person who has most clearly articulated both the existence and the need for a combination of both types of knowledge in teaching.

Our theoretical orientation is transformative, to teach students to think about both subject matter and how to teach it, in the most inclusive and democratic ways, meaning that all students should be taught to challenge ideas and even facts, to think about material that is presented to them. There is much still to be done on this project, both substantively and logistically. We are continuing to meet with individuals in the Arts and Sciences to explore and develop more prototypical modules. We will also discuss how such project modules could be used in seminars. The active participation and collaboration with the mathematics department also continues to inform the work.

It is somewhat idealistic to propose that our Faculty, and our

students, could actively combine subject matter and pedagogy. Yet, each individual who has attempted this idea has found it productive, both intellectually and pragmatically. Further work should involve evaluating more clearly and objectively the effect of these modules and seminars on students and teachers at several levels.

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